

ABSTRACT

A process of making polytrimethylene terephthalate staple fibers, comprising (a) providing polytrimethylene terephthalate, (b) melt spinning the melted polytrimethylene terephthalate at a temperature of 245-285°C into filaments, (c) quenching the filaments, (d) drawing the quenched filaments, (e) crimping the drawn filaments using a mechanical crimper at a crimp level of 8-30 crimps per inch (3 - 12 crimps/cm), (f) relaxing the crimped filaments at a temperature of 50-120°C, and (g) cutting the relaxed filaments into staple fibers having a length of about 0.2-6 inches (about 0.5 – about 15 cm), and polytrimethylene terephthalate staple fibers, yarns and fabrics. Further, a process of optimizing the crimp take-up of a polytrimethylene terephthalate staple fiber comprising determining the relationship between denier and crimp take-up and manufacturing staple fibers having a denier selected based upon that determination.